

# PURDUE UNIVERSITY



DEPARTMENT OF FORESTRY  
AND NATURAL RESOURCES

April 10, 2000

Mr. Larry D. Macklin, Director  
Department of Natural Resources  
Executive Office  
402 W. Washington Street  
Indianapolis, IN 46204

Dear Mr. Macklin:

Since our discussion on March 7, 2000, concerning reduction of deer in Indiana's state parks, I have prepared a package of materials for review by several biologists throughout Indiana (see attached). Letters received from these biologists are attached.

Specifically I asked them to review my recommendations on the information used and the timing of annual decisions for reduction of deer within a given park and to prepare letters of support. These recommendations include a four-step process as follows:

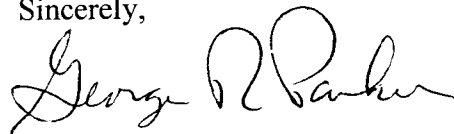
1. The initial decision to implement a reduction program in a park should be based on an assessment of the habitat (vegetation) condition.
2. Once a reduction program is implemented, annual reductions should occur until the level of removal reaches 0.22 kill/hunter effort or 12 to 16 deer removed /square mile of park area.
3. Once the population is reduced, an annual or biennial program of deer removal should continue indefinitely (or until more suitable methods are developed) to maintain the population within balance with its habitat.
4. Decisions should be made in early April each year to allow enough time for planning the fall reduction program.

Under this recommended program only Brown County and Versailles would not be hunted during the fall of 2000. Fifteen parks would have a deer reduction in 2000 including: Chain'o'Lakes, Charlestown, Clifty Falls, Indiana Dunes Harmonie, Lincoln, McCormick Creek, Pokagon, Potato creek, Shades, Shakamak, Spring Mill, Tippecanoe River, Turkey Run, and Whitewater. Reduction data for 2000 in parks (not hunted in

1999) such as Charleston, Potato Creek, Pokagon, Tippecanoe River, Whitewater, Chain'O'Lakes, and Clifty Falls would be examined to determine the increase in deer when a year is skipped between removal. Brown County and Versailles would be hunted in 2001 (along with all other parks hunted in 2000 in which removals remain above 15 deer/ square mile) and evaluated to determine the extent of increase in the deer herd. Habitat conditions will be evaluated in other parks such as Ft. Harrison, Mounds, Ouabache, and Summit in June, 2000 to assess their condition and determine whether a deer reduction is needed.

This program of orderly reduction of deer will allow more rapid recovery of the ecological balance within Indiana's state parks. I strongly encourage you to adopt it.

Sincerely,

A handwritten signature in cursive script, reading "George R. Parker". The signature is fluid and elegant, with a large, stylized "G" and "P".

George R. Parker, Ph.D.  
Professor of Forest Ecology

# PURDUE UNIVERSITY



DEPARTMENT OF FORESTRY  
AND NATURAL RESOURCES

To: Marion Jackson, Rebecca Dolan, Edwin Squiers, Harmon Weeks, Peter Waser, John Whitaker, Charles Mortensen, Damian Schmelz, Olin Rhodes, Jeff Lucas  
From: George R. Parker  
Subject: Deer in Indiana State Parks  
Date: March 21, 2000

As many of you know I have been working to restore an ecological balance between white-tailed deer and state park habitats for several years. Some of you were involved in the early stages of this process. While much progress has been made since the first deer reduction in Brown County State Park in 1993, the decision on whether to have a reduction each year in a given park is still somewhat political. For example, although habitat analysis in 1999 resulted in a recommendation for a deer reduction in 15 parks only 10 were hunted. Therefore, I am asking for your help to insure the success of this program. Specifically I have asked Larry Macklin, Director of IDNR, to change the information that is used to make a decision on reducing deer number in a particular park and the timing of his decisions. A copy of the letter that I delivered to him in early March is attached.

My students and I have shown excessive deer browse on the plant communities within 17 state parks to date and are continuing to examine additional parks. The state law (passed in 1995) requires DNR to take action to control the population of any species likely to damage the ecological balance within a state park (law attached). The problem with DNR's current decision process is that they wait for my annual report on the condition of the vegetation within each park usually delivered in August. Vegetation data are useful in showing the initial damage in a park that would justify initiation of a control program, but should not be used to justify an annual reduction once initial damage is shown. Once the habitat is damaged due to excessive population of deer, the damage will be evident for several years even if deer number are reduced (it takes several years for the vegetation to recover, especially with the level of damage found in Indiana's parks). If deer damage must be documented before every single hunt, the deer population will never be sufficiently reduced to allow habitat recovery. Note that the state law does not require an annual assessment. In summary, using vegetation data to make the initial decision to begin a control program within a park is valid, but once that decision is made other information should be used. Vegetation should continue to be assessed to determine the rate of recovery as deer numbers are maintained in balance with the park's habitat.

What other data can be used to make an annual decision on whether a park should have a deer reduction? Since the initial reduction in 1993, DNR biologists have collected data on the number of hunters, number of days hunted and number of deer removed from each park (see attached DNR memorandum). These data clearly show that with one hunter/ 20 acres and two days hunting by each of two consecutive groups of hunters (four days total), it requires 3 to 5 years to reduce deer densities in state parks to levels found in other areas that have been hunted for many years, such as fish and wildlife areas (0.22 deer per unit of hunter effort or 13 to 16 deer per square mile of park). So once the decision is made to initiate a control program within a park, it should be hunted annually until this removal level is reached. Once the deer population is reduced to this removal level, a long-term program must be implemented to maintain the population. This may mean an annual or biennial removal (more data are needed to determine which time interval is appropriate).

As you can see in the attached summary table, whether or not a park is hunted has been inconsistent. Most have not been hunted for enough consecutive years to reduce the deer population to a level that will allow recovery of the habitat. For example, look at Harmonie, Chain'o'Lakes, Clifty Falls, and Lincoln. This inconsistency simply prevents recovery.

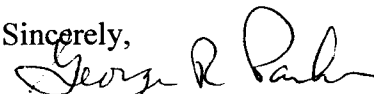
In summary, I am recommending the following decision rules to determine which parks should have a deer reduction each fall.

1. The initial decision to implement a reduction program in a park should be based on an assessment of the habitat condition.
2. Once a reduction program is implemented, annual reductions should occur until the level of removal reaches 0.22 kill/hunter effort or 12 to 16 deer removed /square mile of park area.
3. Once the population is reduced, an annual or biennial program of deer removal will continue indefinitely (or until more suitable methods are developed) to maintain the population within balance with its habitat.
4. Decisions will be made in early April each year to allow enough time for planning the fall reduction program.

If you agree with my assessment and recommendation, would you send me a statement to that effect under the letterhead of your school or organization. If you do not wish to place it under your letterhead, send it with your signature and title. I will then prepare a package to deliver to Larry Macklin. I need your statement by April 7, 2000.

Thanks for your support. If you need clarification on this matter, please call or e-mail me at:  
phone-- office 765/494-3602, home 743-3327  
e-mail: [grp@fnr.purdue.edu](mailto:grp@fnr.purdue.edu)  
fax: 765/496-2422

Sincerely,



George R. Parker

Professor of Forest Ecology

## **Supporting letters from Indiana Biologists**



**BUTLER  
UNIVERSITY**

**Department of Biological  
Sciences**

4600 Sunset Avenue  
Indianapolis, Indiana 46208-3485  
(317) 940-9411

April 7, 2000

Dr. George Parker  
Department of Forestry and Natural Resources  
Purdue University  
West Lafayette, IN 47907-1159

Dear Dr. Parker:

I am writing to support your position on policy change efforts in regard to deer reductions in Indiana State Parks. You and your students have scientifically documented the enormous damage deer overpopulation is causing to our flora. Deer reduction efforts must be consistently and adequately implemented to have the desired benefit. I hope the appropriate authorities will listen to your well-reasoned arguments.

Sincerely,

A handwritten signature in black ink, appearing to read "Rebecca W. Dolan".

Rebecca W. Dolan, PhD  
Director – Friesner Herbarium



# Indiana State University

Department of Life Sciences

April 10, 2000

Dr. George R. Parker  
Department of Forestry and Natural Resources  
Purdue University  
West Lafayette, IN 47907

Dear George,

Thank you for updating me concerning the status of deer management efforts in a number of Indiana State Parks. As a member of the original study team that recommended a reduction in deer herd size within Brown County State Park, I have a keen interest in efforts to bring deer numbers to a level that will, over time, permit recovery of deer habitat within all state parks throughout Indiana.

You and your students are to be commended for your detailed field assessments of vegetation recovery following deer herd reductions. I am in complete agreement with your recommendations to continue deer removal at the proposed locations, and to harvest deer in appropriate numbers until it can be demonstrated that the vegetation has stabilized, and that deer numbers are in balance with the long-term carrying capacity of state park habitat.

Sincerely yours

Marion T. Jackson  
Professor of Life Sciences

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# PURDUE UNIVERSITY



DEPARTMENT OF BIOLOGICAL SCIENCES

30 March 2000

To: Dr. George R. Parker

From: Dr. Jeffrey R. Lucas, Assoc. Professor of Biological Sciences

A handwritten signature in cursive script that reads "Jeffrey R. Lucas".

I have read your recommendations concerning sustained deer-reduction hunts. I strongly agree with your conclusions that these hunts need to be continued for several years in order to attain the target densities (0.22 kill/hunter effort) you described in your letter. I have seen firsthand how much damage deer create by overgrazing, and how this damage is mitigated by the reduction-hunts you are proposing. From my perspective, this is an ecological (not a political) problem and should be treated as such. Surely we should do everything we can to maintain the quality of Indiana's landscape. Hopefully your proposal will be given the utmost consideration.



DEPARTMENT OF NATURAL RESOURCES  
AND ENVIRONMENTAL MANAGEMENT

Muncie, Indiana 47306-0495  
Phone: 765-285-5780  
Fax: 765-285-2606

TO: George N. Parker, Professor Forest Ecology  
Purdue University

DATE: March 28, 2000

FROM: Charles O. Mortensen, Professor and Chair

RE: Deer Removal - Indiana State Parks

Having seen first hand the excessive vegetative browsing by white-tailed deer in several of our state parks, I applaud your continuing research documenting the ecological damage to plant communities from an overpopulation of this species.

There is absolutely no question that if Indiana is to have healthy plant communities in our state parks/reservoirs, it is incumbent on the DNR to follow the **guidelines for deer reduction** you are recommending based on your collaborative research with students.

Those of us who value and understand the concept of carrying capacity owe a debt of gratitude to your long-term scientific efforts directed at an orderly reduction of deer in our state parks. At stake, if we cannot maintain a scheduled reduction to carrying capacity levels, is the diminution of a rich ground flora and advanced seedling (tree species) regeneration bequeathed to our generation by those far-sighted individuals who initiated and developed our system of state parks with the intention of protecting the "total" resource base not to the favor of any particular species.

ct

# PURDUE UNIVERSITY



DEPARTMENT OF FORESTRY  
AND NATURAL RESOURCES

Dr. George R. Parker  
Professor  
Department of Forestry and Natural Resources  
1159 Forestry Building  
Purdue University  
West Lafayette, Indiana 47907

April 8, 2000

Dear George,

I am writing you to indicate that I concur with your assessment regarding the Indiana policy on deer reduction in State Parks and to indicate my endorsement of your recommendations as outlined in your letter of March 21, 2000. In my opinion, the decision rules you are recommending to the IDNR are sound and based on sound scientific principals. Many examples exist wherein the failure to adequately monitor and adjust population control measures after their initiation has resulted in a failure to meet the objectives of the reduction program. The measures you suggest in your letter would allow IDNR biologists to meet the objectives of the deer reduction program in a scientifically sound manner. Thanks you for the opportunity to comment on your recommendations.

Best Wishes,

A handwritten signature in black ink, appearing to read "Olin E. Rhodes, Jr.", written over the "Best Wishes," text.

Dr. Olin E. Rhodes, Jr.  
Associate Professor  
Department of Forestry and Natural Resources  
Purdue University

31 March 2000

Dr. George R. Parker  
Department of Forestry and Natural Resources  
Purdue University  
1159 Forestry Building  
West Lafayette, IN 47907-1159

Dear Dr. Parker:

Please accept this letter as a statement of formal support for the position you have advocated in regard to the restoration of the ecological balance between white-tailed deer and state park habitats as stated in your memo (Subject: Deer in Indiana State Parks) dated March 21, 2000. Your long standing interest and expertise on this problem is widely recognized by ecologists throughout the state and your conclusions regarding a long-term solution are grounded in ecological science and easily defended.

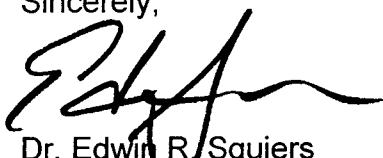
There is no doubt that white-tailed deer are an important part of Indiana's natural ecosystems. Unfortunately, the lack of natural predators combined with the deer's a very rapid reproduction rates means that where the deer are protected from human predation (hunting) their numbers quickly overwhelm the rest of the natural community. Left unchecked, the unnaturally high deer populations literally "eat themselves out of house and home," destroying the natural vegetation of the parks. Once the vegetation is decimated, the deer herd itself suffers from malnutrition and disease.

The ecology of Indiana's State Parks should include diverse and abundant plant communities as well as healthy white-tailed deer herds. This will not occur without proper scientific management. The four summary decision rules that you propose seem to me to represent the most logical deer management proposal presented to date. I support them without reservation.

Feel free to pass this letter along to the DNR Commissioner and other government officials if you believe that it would be useful in support of your recommendations.

Give me a call if I can be of further help.

Sincerely,



Dr. Edwin R. Squiers  
Chair and Professor  
Department of Earth and Environmental Science

765-998-5386  
rcsquiers@tayloru.edu

500 West Reade Avenue  
Upland, Indiana 46989-1001  
317-998-2751



*Saint Meinrad*  
Archabbey

April 3, 2000

George R. Parker  
Professor of Forest Ecology  
Department of Forestry and Natural Resources  
Purdue University  
1159 Forestry Building  
West Lafayette IN 47907-1159

Dear Dr. Parker:

As you recall, I chaired the Brown County State Park Deer Population Study Committee, which managed to break the back of one of the "can't be done" issues in Indiana, to reduce the deer herd in that park by killing animals. It was an interesting experience, but I would rather not to have to deal again with some of the individuals and organizations who opposed the final decision and offered alternate solutions.

You and your students have tracked subsequent results and laid out solid evidence for what must continue to be done in all the parks of the system. Your 4-point recommendation for determining each year which parks need to be scheduled for herd reduction is simple and objective. If accepted and implemented, DNR Director Macklin would be freed of the inevitable political pressures which compromise natural habitat recovery.

I fully support your recommendation and your ongoing assessment studies in all the parks.

Sincerely,

Damian Schmelz, Ph.D  
Forest Ecologist

# PURDUE UNIVERSITY



DEPARTMENT OF BIOLOGICAL SCIENCES

March 31 2000

Dr. Larry D. Macklin, Director  
Department of Natural Resources  
Executive Office  
402 W. Washington Street  
Indaiapolis, IN 46204

Dear Mr. Macklin:

I am a population ecologist in Purdue's Department of Biological Sciences. I write in support of Dr. George Parker's suggestions regarding the reduction of deer herds in Indiana State Parks. Dr. Parker suggests that once a reduction program is initiated within a park, based on assessment of habitat condition, that an annual reduction will continue until removal drops to a harvest per hunter effort of 0.22. I am not personally familiar with the data behind this specific figure (0.22) but the idea of hunting until the population drops to the point where it generates a standard yield is a logical and well-established one. It seems to me clear that unsystematic attempts to deal with the problem generate as much of a public reaction as systematic ones, without any of the benefits. Deer reduction is a program that is working well and it is worth doing right!

Sincerely,

A handwritten signature in cursive script that reads "Peter Waser".

Peter Waser  
Professor, Biological Sciences

# PURDUE UNIVERSITY



DEPARTMENT OF FORESTRY  
AND NATURAL RESOURCES

March 29, 2000

Mr. Larry Macklin, Director  
Dept. of Natural Resources  
Executive Office  
402 W. Washington St.  
Indianapolis, IN 46204

Dear Mr. Macklin:

I have been involved with the problem of overabundant deer damaging the ecosystems of our state parks since the initial consideration of possible solutions – I was a member of the original committee that examined alternatives prior to the first reduction in Brown County State Park in 1993. Because of my concern for the integrity of the valued, and frequently unique, ecosystems of our state parks, I have followed progress very closely since that time. I also conducted research that showed that the damage done by deer to the vegetation had higher-level effects, negatively impacting songbird communities that are dependent on that vegetation community for reproductive habitat.

I have reviewed the recommendations of Dr. George Parker for modification of the basis and timing for annual decisions regarding which parks need reductions in deer numbers. I concur with his recommendations, and suggest that you seriously consider adopting them to insure the continued and long-term recovery of the plant communities of our parks, as well as of the animal communities that depend on those habitats. Deer have the capability to quickly increase their numbers (potential of almost doubling each year) and populations need to be kept in balance with the habitat for a long enough period to allow vegetational recovery without addition excessive, periodic damage from quick-recovering deer populations. Reduction decisions based on hunter success rates are scientifically valid; suggested triggering levels seem reasonable.

Once goals are reached, some regular removal of deer (or other population control alternatives, which at this point do not exist) will continue to be necessary to prevent reoccurrence of damage. This should be a standard annual or biennial practice, as is used by surrounding states to protect their valued park ecosystems.

Thanks for your consideration of alternatives that will base decisions on good science and recognition of realities. Our deer resources in a healthy viable condition and healthy diverse ecosystems are both important to the citizens of Indiana; achieving that balance in our state parks is a worthy goal.

Sincerely,

A handwritten signature in black ink, reading "Harmon P. Weeks, Jr." with a stylized flourish at the end.

Harmon P. Weeks, Jr.  
Professor of Wildlife Ecology



# Indiana State University

Department of Life Sciences

April 4, 2000

To whom it may concern:

I was a member of both of the committees that recommended deer control in our state parks. We have come a long way since then, but it appears that politics is still involved in decision making as to where and when deer reductions will occur.

Once deer populations have become so large that habitat damage is evident, then it clearly takes several years to reduce the deer herd to proper levels. Therefore once habitat damage is demonstrated, deer reductions should begin and should continue until the desired population levels are reached. At that time control measures can occur at a lower level in order to maintain the desired population.

I fully agree with George Parker and recommend that you follow the procedures outlined in his letter of 7 March to Mr. Larry D. Macklin.

Sincerely,

John O. Whitaker, Jr.  
Professor of Life Sciences

JOW/jlr